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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,331	10/01/2003	Zhiqiang Gao	27433.04010	6499

24024 7590 12/06/2005

CALFEE HALTER & GRISWOLD, LLP  
800 SUPERIOR AVENUE  
SUITE 1400  
CLEVELAND, OH 44114

EXAMINER

KASENGE, CHARLES R

ART UNIT	PAPER NUMBER
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2125

DATE MAILED: 12/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/676,331	GAO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Charles R. Kasenge	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9/19/05, 7/28/05</u>  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see Remarks, filed 9/19/05, with respect to the rejection(s) of claim(s) 1-36 under 35 U.S.C. 102(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Huang.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Huang.

Referring to claims 1, 19, 35, and 36, Huang discloses a method for producing a control output, comprising: identifying an error signal (pg. 37, ¶1 and 2); decomposing the error signal into a plurality of signal components, a sum of the plurality of signal components being equal to the error signal, the plurality of signal components being determined based on a plurality of orthogonal functions representing multi-resolution decomposition properties (pg. 38, Fig. 20); transforming each signal component (pg. 38, Fig. 20); and summing the transformed signal components to determine a control signal (pg. 38, Fig. 20).

Referring to claims 2-5 and 20-23, Huang discloses the method of claim 1, wherein the plurality of orthogonal functions include at least one function describing wavelets (pg. 18, ¶1).

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Huang discloses the method of claim 1, wherein transforming includes differentiation of at least one signal component (pg. 17, ¶1). Huang discloses the method of claim 1, wherein transforming includes integration of at least one signal component (pg. 18, ¶1). Huang discloses the method of claim 1, wherein transforming includes scaling of at least one signal component (pg. 25, ¶2).

Referring to claims 6-12 and 24-29, Huang discloses the method of claim 1, wherein transforming includes applying a linear function to at least one signal component (pg. 7, ¶3). Huang discloses the method of claim 1, wherein transforming includes applying a non-linear function to at least one signal component (pg. 1, ¶2). Huang discloses the method of claim 1, wherein the control signal is determined in real time (pg. 117, ¶2). Huang discloses the method of claim 1, wherein one of the signal components is the differential of the error signal using Daubechies wavelets (pg. 17, ¶1). Huang discloses the method of claim 1, wherein identifying an error signal includes receiving the error signal (pg. 36, ¶3). Huang discloses the method of claim 1, wherein the plurality of transformed signal components includes each of a low, intermediate and high scale component (pg. 17, ¶1). Huang discloses the method of claim 1, wherein the control signal is represented as  $u$  (Fig. 2 and pg. 8, ¶2).

Referring to claims 13-18 and 30-34, Huang discloses the method of claim 12, wherein each function  $f(\cdot)$  can be a linear or a non-linear function (Fig. 2 and pg. 8, ¶2). Huang discloses the method of claim 12, wherein each signal component is a function of time and frequency (pg. 13, ¶1). Huang discloses the method of claim 12, wherein the plurality of signal components includes  $(de/dt)K_d$ , and  $K_p$  (pg. 48, Fig. 24). Huang discloses the method of claim 15, wherein summing the scaled signal components includes summing only  $(de/dt)K_d$ , and  $K_p$  to emulate a PD controller output (pg. 48, Fig. 24). Huang discloses the method of claim 12, wherein the

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plurality of transformed signal components includes  $(de/dt)K_d$ ,  $(1/s)K_i$ , and  $K_p$  (pg. 48, Fig. 24).

Huang discloses the method of claim 17, wherein summing the transformed signal components includes summing  $(de/dt)K_d$ ,  $(1/s)K_i$  and  $K_p$  to emulate a PID controller output (pg. 48, Fig. 24).

### *Conclusion*

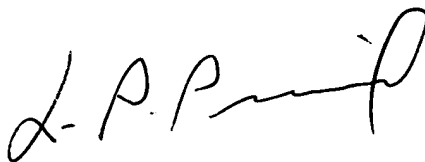
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles R. Kasenge whose telephone number is 571 272-3743.

The examiner can normally be reached on Monday through Friday, 8:30 - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CK  
November 29, 2005



**LEO PICARD**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2100**